

What is AMD64 technology?

AMD64 technology is AMD's approach to 64-bit computing which doubles the number of processor registers and increases the addressable memory space well beyond 4GB for increased performance and new, cinematic-computing experiences. Processors with AMD64 technology offer leading-edge performance on today's software applications while enabling a seamless migration to future 64-bit computing.

What is HyperTransport™ technology?

HyperTransport technology is a high performance, easy-to-implement system interconnect technology originally invented by AMD. It is designed to increase overall system performance by removing I/O bottlenecks, increasing bandwidth, and reducing latency. HyperTransport technology implemented in the AMD Athlon 64 processor enables a system bus to run at 1600MHz. The total delivered processor-to-system bandwidth is up to 9.6GB/sec allowing for high speed I/O communication and increased performance.



The AMD Athlon 64 processor has a lot to offer

For the tech-savvy consumer

- Industry-leading performance today, with readiness for the future
- Revolutionary processor design maximizes performance and system efficiency
- Astonishing, true-to-life digital entertainment experience
- Escape into a movie-like gaming experience, and get set for the next wave of 3D interactive games

For small and medium business

- Revolutionary AMD64 technology stretches your IT dollar
- Breakthrough application performance through a more efficient architecture
- Maximize performance on existing 32-bit applications, ready for future software

About AMD model numbers

AMD model numbers are a simple, accurate representation of relative AMD processor performance on industry-standard software benchmarks. Model numbers convey relative performance among different AMD processors to help you simplify your purchase decision.



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Introducing the **only**
Windows®-compatible
64-bit PC processor

The AMD Athlon™ 64 processor

AMD proudly introduces the only Windows®-compatible 64-bit PC processor, ready to usher in a new world of computing.



The world's most technically advanced processor for desktop and notebook PCs

- Delivers industry-leading performance for the most demanding productivity, gaming, and digital media software
- Allows for a seamless transition to 64-bit computing

AMD64 technology

- Enables a smooth 32- to 64-bit transition at your own pace
- Allows you to take advantage of upcoming 64-bit applications for new computing experiences and capabilities – without sacrificing existing hardware or software

1600MHz system bus using HyperTransport™ technology

- Offers up to 50% more total processor-to-system bandwidth than competing processors
- Revs up I/O communications for incredibly high system performance and better multitasking

The most advanced PC processor for notebook computing

The AMD Athlon™ 64 processor offers exceptional performance for mobile users, with built-in wireless compatibility and AMD PowerNow!™ technology.

- AMD PowerNow! technology helps extend system battery life
- Fully compatible with 802.11a, b, and g wireless solutions

Features and benefits

Features	Benefits
AMD64 Technology <ul style="list-style-type: none"> • Provides full-speed support for x86 code base • Simultaneous 32- and 64-bit computing on the same platform 	<ul style="list-style-type: none"> • Delivers leading-edge performance on existing 32-bit applications • Allows a smooth 32- to 64-bit transition at users' own pace without sacrificing existing hardware and software • Supports huge addressable memory for new computing experiences and capabilities such as real-time encryption, life-like games, accurate speech interfaces, and cinema-quality graphics effects
HyperTransport Technology <ul style="list-style-type: none"> • 1600MHz system bus; Up to 9.6GB/sec total processor-to-system bandwidth 	<ul style="list-style-type: none"> • Increases overall system performance by reducing I/O bottlenecks and increasing system bandwidth • Provides better multi-tasking, quicker loading of applications and extraordinary multimedia experience
Integrated DDR Memory Controller <ul style="list-style-type: none"> • Directly connects the processor to the main memory for dramatically reduced memory latency 	<ul style="list-style-type: none"> • Enables faster sorting and filtering on spreadsheets, speedy CD ripping and image rendering, and smooth multi-tasking
Large High-Performance, On-Die Cache <ul style="list-style-type: none"> • The largest on-die cache memory system (1152KB total effective cache) for PC processors 	<ul style="list-style-type: none"> • Greatly improves data throughput, enhancing performance on many applications, especially large memory workloads like video editing and gaming
3DNow!™ Professional Technology + SSE2 Instructions <ul style="list-style-type: none"> • Compatible with the largest installed base of multimedia enhanced software 	<ul style="list-style-type: none"> • Enables stellar performance and playback quality on all digital entertainment features such as games, DVDs, music, and streaming video and audio

Feature comparison

Features	AMD Athlon 64 processor	Intel® Pentium® 4 processor
Architecture Introduction	2003	2000
64-bit Instruction Set Support	Yes, AMD64 technology	No
32-bit Instruction Set Support	Yes	Yes
System Bus Technology	HyperTransport technology @ up to 1600MHz. Full duplex	Front Side Bus @ 800MHz Half duplex
Integrated DDR Memory Controller	Yes, 64-bit + 8-bit ECC PC3200, PC 2700, PC 2100, or PC1600	No, Discrete logic device on motherboard
Total Processor-to-System Bandwidth	Up to 9.6 GB/sec	Up to 6.4 GB/sec
Integrated Northbridge	Yes, 128-bit data path @ CPU core frequency	No, Discrete logic device on motherboard, 64-bit data path @ 200MHz
High-performance, On-chip Cache	L1: 128KB L2: 1024KB (exclusive) Total Effective Cache: 1152KB	L1: 12K top trace + 8KB data L2: 512KB (Inclusive) Total Effective Cache: 512KB
3D and Multimedia Instructions	3DNow! Professional technology, SSE2	SSE, SSE2